



The Effect Of Back Massage On The Sleep Quality Of Trimester III Primigravida Pregnant Women In Puskesmas Talaga Jaya

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Abstract

The quality of sleep on pregnant women affected their condition during pregnancy. A decrease in sleep duration in pregnant women can cause a decrease in concentration, fatigue, body aches, losing the mood to work, and having a tendency to be emotional. The aim of the study was to determine the effect of back massage on the sleep quality of trimester III primigravida pregnant women in Puskesmas Talaga Jaya. The research design was a quasi experimental design with a nonequivalent control group design. The research sample was 20 pregnant women with the sampling technique using purposive sampling. From the results of the independent *t* test, it shows that there is a difference between the experimental group and the control group on the decrease in sleep quality with a *p* value of = 0.000 $\alpha < (0.05)$. Therefore, it can be concluded that back massage is more effective in increasing sleep quality of those given treatment than those without given treatment.

Introduction

Pregnancy is considered as an invaluable gift for a family, for it is the most beautiful period that every couple in this world eagerly awaits. Almost all of primigravida pregnant women experienced worry, anxiety, and fear both during pregnancy, when facing childbirth and after childbirth (Apriliani, 2015). Problems occurred in the third trimester of pregnancy can include low back pain (occurs due to the increased weight carried in the uterus), decreased amount of sleep (occurs because the mother has difficulty sleeping, This is felt as a result of increased anxiety or worry and physical discomfort). Every living thing is required to fulfill its basic needs in the form of survival. One of these basic needs is the need for sleep (Diana, 2017).

Sleep is an active process, not just the opposite of being awake. The overall level of brain activity does not decrease during sleep. Statistically, it was reported that most healthy adults slept 7.5 hours each day. However, the problem in sleep is quality, not just quantity, six hours of restful sleep is better than eight hours of sleep with the help of drugs or restless sleep (Alimul & Aziz, 2006). The need for sleep is important for humans. Sleep has an essential role for the physiological and psychological health of an individual and forms the basis for a person's quality of life.

A loss in sleep duration in pregnant women can make the condition of pregnant women decreased in concentration, fatigue, body aches, not in the mood to work, and tend to be emotional. This can make the burden of pregnancy even heavier. Sleep disturbances cause depression and stress that affects the fetus they are carrying. Mild stress causes the fetus to

experience an increase in heart rate, but heavy and prolonged stress will make it hyperactive (Ni'mah, 2013).

The quality of sleep for pregnant women has an effect on the condition of the mother during pregnancy. The quality of sleep in pregnant women will have an effect on increasing blood pressure so that it can potentially lead to preeclampsia. Preeclampsia is a pregnancy disorder characterized by high blood pressure and high protein content in the urine. This condition can harm other organs, such as the kidney, liver, and eyes, which can cause death. In addition to being harmful to the mother's body, the condition of preeclampsia affects the condition of the baby as well (Hudak & Gallo, 2011).

Research by the National Sleep Foundation shows that more than 79% of pregnant women experience irregularity in their sleep. Sleep disturbance and frequent fatigue is one of the most frequent complaints reported by pregnant women. On average 60% of pregnant women feel often tired at the end of term and more than 75% complain of sleep disturbances (National Sleep Foundation, 2015). The World Health Organization (WHO) estimates that around 15% of all pregnant women will experience conditions that develop into complications related to their pregnancy and threaten their lives (Ministry of Health of the Republic of Indonesia, 2014).

Massage is a simple manipulation to rub the body parts so that it gives a relaxing effect on the body and provides calmness. This is certainly a good choice for overcoming sleep disorders, because massage can be done independently by health workers and can be taught to families. The importance of massage therapy is well known at this time. Massage is known to stimulate and regulate physiological processes such as digestion and respiration. Massage can be said to be one of the long-established healing traditions. Simple back massage for 3 minutes can increase the comfort and relaxation of clients and have a positive effect on cardiovascular parameters such as blood pressure, heart rate and respiratory rate (Potter & Perry, 2005). Massage is an independent action that can be done by anyone without having to collaborate with other health workers. In the list of competency standards, massage is one of the prerequisite independent actions.

According to the Gorontalo Provincial Health Office in Gorontalo City, there were 4,406 pregnant women. Gorontalo Regency as many as 8,247 pregnant women, Boalemo Regency, 3,634 pregnant women, Pohuato Regency as many as 3,606 pregnant women, Bone Bolango Regency as many as 3,489 pregnant women. North Gorontalo Regency, 2,728 pregnant women (Gorontalo Provincial Health Office, 2017). According to data from the Gorontalo Regency Health Office, in 2013 there were 6567 pregnant women, in 2014 the number was 6282 pregnant women, in 2015 there were 6673 pregnant women, and in 2016 the number of births was 6566 pregnant women (Gorontalo District Health Office, 2017).

Based on a preliminary study conducted by researchers on 10 pregnant women, 6 of them said that currently they experience sleep disorders because the mother feels anxious and worried about her pregnancy. So far, pregnant women say that they have never done back massage to reduce or overcome sleep problems.

The reason the researchers chose back massage therapy is because this therapy is easy to apply not only by health workers or experts, but people can also apply it independently after being given training on how to perform the massage. Therefore, researchers are interested in conducting research on how significant back massage therapy affects the quality of sleep of third trimester primigravida pregnant women in the work area of the Talaga Jaya Community Health Center.

Methods

This study used a quasi experimental study using a pretest-posttest design with control group design. This study was divided into two groups, namely the treatment group was given back massage and the control group was not given back massage. Before being given treatment, the two sample groups were measured their sleep quality using the Pittsburgh Sleep Quality Index (PSQI). Then, after being given therapy to the treatment group, their sleep quality was measured again using PSQI as well. The research sample was pregnant women in the third trimester consisting of 10 pregnant woman in intervention groups and 10 in control groups who met the inclusion and exclusion criteria using purposive sampling technique. In this study, massage was given 10 minutes, for 3 consecutive days. Independent variables in this study were back massage and elderly exercise. The dependent variable in this study is the quality of sleep in third trimester pregnant women to find out the significant effect of back massage on sleep quality in third trimester primigravida pregnant women before and after the intervention, the data normality test was carried out using the Kolmogorov-Smirnov, so the data with normal distribution was hypothesized by paired t-test and independent t test.

Results and Discussion

Univariate Analysis

Respondent characteristics

Table 1 shows the sample frequency of the intervention group with the mother's age at 20-24 years as many as 5 people (50%), and the mother's age 25-30 years as many as 5 people (50%). While the sample frequency in the Control group 20-24 years was 7 people (70%), and ages 25-30 were 3 people (30%). The total sample was more than 12 people aged 25-30 years, while 8 people aged 25-30 years.

Table 1. Frequency distribution based on age who experienced sleep disorders in the Talaga Jaya Public Health Center

Age	Intervention Group		Control Group	
	N	%	N	%
20-24	5	50%	7	70%
25-30	5	50%	3	30%
Total	10	100%	10	100%

Source: Primary Data, (2018)

Table 2 shows the sample frequency of the intervention group with the last education of elementary school (SD) as many as 3 people (30%), last education was junior high school (SMP) as many as 3 people (30%), and last education was high school (SMA) as many as 4 people (40%). the sample frequency of the control group with the last education is elementary school (SD) 3 people (30%), last education was junior high school (SMP) was 5 people (50%), and the last education was high school (SMA) 2 people (20 %).

Table 2. Frequency distribution based on education with sleep disorders in the Talaga Jaya Community Health Center

Education	Intervention Group		Control Group	
	N	%	N	%
Elementary	3	30%	3	30%
Junior High School	3	30%	5	50%
Senior High School	4	40%	2	20%

Total	10	100%	10	100%
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Source: Primary Data, (2018)

Table 3 shows the results of the study on the level of sleep quality at pretest where respondents in the intervention group who had good sleep quality were 0 people (0%), 0 people had light sleep quality (0%), 2 people (20%) had moderate sleep quality, and 8 people (80%) had poor sleep quality. Whereas in the control group respondents who had good sleep quality were 0 people (0%), with light sleep quality 0 people (0%), 10 people (100%) had moderate sleep quality, and 0 people (0%) had poor sleep quality.

Table 3. Description of sleep quality before being given back massage therapy in third trimester primigravida pregnant women in the control and intervention groups

Quality Sleep	Intervention		Control	
	Frequency	Percentage (%)	frequency	Percentage (%)
Good	0	0 %	0	0 %
Light	0	0 %	0	0 %
Moderate	2	20 %	10	100 %
Poor	8	80 %	0	0 %
Total	10	100%	10	100%

Source: primary data, (2018)

Table 4 shows the results of the research on sleep quality levels at posttest where respondents in the intervention group who had good sleep quality were 0 people (0%), light sleep quality was 7 people (70%), moderate sleep quality was 3 people (30%), and poor sleep quality was none 0 people (0%). Whereas in the control group, respondents who had good sleep quality were 0 people (0%), 0 people (0%) had light sleep quality, 9 people (90%) had moderate sleep quality, and 1 person (10%) had poor sleep quality.

Table 4. The depiction of sleep quality after being given back massage therapy in the third trimester primigravida pregnant women of the control and intervention groups

Sleep Quality	Intervention		Control	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Good	0	0 %	0	0 %
Light	7	70 %	0	0 %
Mild	3	30 %	9	90 %
Poor	0	0 %	1	10 %
Total	10	100%	10	100%

Source: Primary Data, (2018)

Bivariate Analysis

Paired Sample T-Test

Table 5. Differences in sleep quality before and after back massage therapy in the control group in the Talaga Jaya Community Health Center

Sleep Quality						
	<i>n</i>	<i>Mean</i>	<i>Mean Difference</i>	<i>SD</i>	<i>T</i>	<i>P-value</i>

Before	10	10,00	-50	1,414	-1,627	0,138
After	10	10,50		2,013		

Source: processed primary data, (2018)

Based on Table 5, it can be seen that the average value of the sleep quality of respondents in the pre-control group is 10.00. Then the post control group experienced a slight increase to 10.50. Based on the Paired Simple T-Test, the t-value is -1.627 with a P-value of 0.138. It can be seen that the P-value is $0.138 > \alpha (0.05)$, this indicates that there is no significant difference in the quality of sleep before and after in the control group in Talaga Jaya Community Health Center working area

Table 6. Differences in sleep quality before and after back massage therapy in the intervention group in the Talaga Jaya Community Health Center

	Sleep Quality					
	<i>N</i>	<i>Mean</i>	<i>Mean Difference</i>	<i>SD</i>	<i>T</i>	<i>P-value</i>
Sebelum	10	15,50	8.60	1,178	15,879	0,000
Sesudah	10	6,90		0,875		

Source: primary data, (2018)

Based on Table 6, the research results show that the average value of sleep quality of respondents in the intervention group before back massage treatment is 15.50. then after the treatment decreased to 6.90. Based on the Paired Simple T-Test, the t-value was 15.879 with a P-value of 0.000. It can be seen that the P-value is $0.000 < \alpha (0.05)$, this indicates that there is a significant difference in the quality of sleep before and after in the control group in the work area of Talaga Jaya Community Health Center.

Independent T-Test

Table 7. Effect of Back Massage on Sleep Quality of Third Trimester Primigravida Pregnant Women in the Intervention Group and the Control Group

	Sleep Quality					
	<i>N</i>	<i>Mean</i>	<i>Mean Difference</i>	<i>SD</i>	<i>T</i>	<i>P-value</i>
Intervention	10	6,90	-3,60	0,876	-5,184	0,000
Control	10	10,50		2,013		

Source: primary data, (2018)

Based on Table 7, the results show that the average sleep quality of the respondents after being given back massage treatment in the intervention group was 6.90, while in the control group it was 10.50. Based on the Independent T Test, it can be seen that the P-value is $0,000 < \alpha (0.05)$, that indicates that there is a significant effect of back massage on the sleep quality of trimester III primigravida pregnant women in the Talaga Jaya Public Health Center.

An overview of the quality of pre and post sleep in third trimester Primigravida pregnant women before and after given back massage

At the beginning of the study, the researcher found 2 respondents with moderate sleep quality and 8 respondents who had poor sleep quality in the intervention group, while the control group got 10 respondents with moderate sleep quality. On average, pregnant women in the intervention group and the control group needed 5-6 hours of sleep at night, according to the

assumptions of the researchers because of their young age, so their thoughts and environmental influences and social media use could not be avoided. The average respondent does not rest during the day, while the need for rest in pregnant women is at night for approximately 8 hours and rest in a relaxed state during the day for 1 hour. In the study, respondents complained of frequent sleep disorders such as back pain, waking up to the bathroom, difficulty finding a comfortable position to sleep, and nightmares.

This is in line with the theory of Tiran, (2007) which states that poor sleep quality often occurs during pregnancy because of an active mind and feeling unable to control the stress experienced associated with physical changes, especially in the third trimester of pregnancy. In the third trimester, the cause of the mother to fall asleep is due to significant physical changes, the increased weight makes the mother feel sore, and also that the sleeping position is awry. Also due to discomfort, among others, increased urinary tract, back pain, and anxiety.

Respondents in the intervention group after being given back massage generally experienced a decrease, on average the respondents experienced better sleep quality, namely reduced back pain and an increase in long sleep time, which was around 7 hours. The complaints that are often felt begin to decrease and feel refreshed when you wake up from sleep in the morning. However, one respondent whose sleep quality did not change because the mother had entered the labor stage which caused the mother to be increasingly anxious and worried about facing childbirth.

Respondents in the control group generally still had difficulty sleeping at night. This is obtained from the results where 9 respondents still with the same results being at moderate sleep quality, and 1 respondent being at poor sleep quality. The complaints they experience include frequent urination at night, back pain, and the mother's inability to sleep right away at night. In the third trimester, pregnant women experience many disorders such as back pain, leg cramps, abdominal discomfort, frequent urination, respiratory problems, and sleep disorders that are often experienced by pregnant women, even though their pregnancy is normal (Sunil Sharma & Rose Franco, 2004).

According to Kaplan et al (2010) one of the six basic needs that are often not being aware of is the need for sleep and rest. One of the problems experienced by pregnant women is sleep disorders such as back pain, waking up to the bathroom, difficulty finding a comfortable position to sleep, and nightmares. The causes of poor sleep quality are an increase in the frequency of BAK, difficulty breathing, or heat. This is supported by research of the National Sleep Foundation, that the third trimester is the most challenging sleep stage of pregnancy with the increasing frequency of urinating, the inability to feel comfortable and the fatigue of the daily habit. A condition when an individual experiences or has the risk of changing the amount and quality of rest patterns that cause discomfort. Sleep disturbances indicate feelings of fatigue, irritability and anxiety, lethargy, blackness in the eye area, swollen eyelids, sore eyes, split attention, headaches, and frequent yawning or drowsiness (Uliyah & Hidayat, 2008).

This is similar to the research of Ni'mah, (2013) which emphasizes that 80% of mothers experience sleep disturbances during pregnancy caused by physiological changes so that pregnant women find it difficult to get comfortable while sleeping. In the research process, the researchers found that most respondents said that along with the enlarged uterus, pregnant women sometimes find it difficult to determine their sleeping position, frequent urination (BAK) and feel hungry at night which causes mothers to wake up in the middle of the night.

Differences in the quality of sleep in third trimester Primigravida pregnant women before and after back massage

After being given back massage to the intervention group, pregnant women felt fresher when they woke up in the morning, this is in accordance with the theory that sleep quality is a state in which the sleep that an individual undergoes produces freshness and fitness when awakened. Back massage has a positive effect on pregnant women by reducing the cortisol hormone to reduce stress, norepinephrine to reduce anxiety, serotonin to reduce pain in the back and legs, low fetal activity. Therefore, the quality of sleep for pregnant women increases, and premature levels in babies are low.

Control group at the beginning of the study and at the end of the study. The problem that is often complained of by pregnant women in the third trimester is still experienced by pregnant women in the third trimester until the end of the study. There is no difference before or after in the control group, according to the assumptions of the researcher, which is influenced by many factors other than the absence of treatment in the control group both pharmacologically and non-pharmacologically in people with sleep disorders. Some of these factors have been described and described above such as psychological factors (stress and depression), environmental factors, lifestyle. Respondents in the control group generally still have difficulty sleeping at night and sleep dysfunction during the day.

These factors greatly affect the quality of sleep for the majority of respondents and there is or there is not any change at all with some of these factors. During this study, most respondents who experience sleep disorders in the moderate category in the control group still experience disturbance of sleep in the moderate sleep quality category after this study was conducted. According to the researchers' assumptions, due to the short research time, the factors that cause sleep disturbances in most respondents cannot be changed in a short time because they are related to the respondent's behavior.

Based on this, the results of the study in the post-control group without treatment showed that there was no significant difference between before and after the study. As for non-pharmacological, independent actions can be done, one of which is back massage. Massage has many benefits in the human body system such as reducing muscle pain, in the cardiovascular system it can improve circulation and stimulate blood flow throughout the body, it can also stimulate skin cell regeneration, and its effect on the nervous system can improve sleep quality (Setyoadi, 2011).

This is in accordance with research by Atika et al. (2013), The effect of back massage on sleep quality in 3rd trimester pregnant women at Batang II Public Health Center that the massage given is a pleasant therapy that can affect rapid sleepiness, so that sleep quality experiences change. This is also emphasized by the research of Diana, (2017) The effect of pregnant woman massage on sleep quality in third trimester pregnant women at Batang II Public Health Center, this shows that massage can be used as a method that can improve sleep quality in pregnant women.

The Effect of Back Massage on Sleep Quality in Trimester III Primigravida Pregnant Women

There is a significant effect of back massage on the sleep quality of third trimester primigravida pregnant women in the Talaga Jaya Public Health Center. Here it can be seen that there is a difference between the intervention group and the control group in the post-test, namely an increase in the level of sleep quality given back massage therapy in the intervention group, and in the control group there is no significant change because pregnant women are not given back massage therapy.

This research is supported by the results of Ahmad's (2017) study, which shows that the results of the Paired Sample T-Test show no difference in the mean pre-test and post-test insomnia in the control group, and there is a difference in the average pre-test and post-test insomnia. In the experimental group, the independent t test, this shows that there is a significant effect of back massage on the reduction of insomnia levels in adulthood.

Back massage, often termed effleurage, is a technique that has long been used in nursing to promote relaxation and rest. The theory of Potter & Perry, (2005) 14 states that a simple 3-minute back rub can increase the client's comfort and relaxation and has a positive effect on cardiovascular parameters such as blood pressure, heart rate and respiratory rate. Massage has many benefits in the human body system such as reducing muscle pain, in the cardiovascular system it can increase circulation and stimulate blood flow throughout the body, it can also stimulate skin cell regeneration and helps in the body's barrier, and its effect on the nervous system can reduce insomnia.

Massage is a technique that can improve blood circulation, relax the body, relieve stress, and fatigue by applying pressure to a certain point. When the muscle tissue contracts during massage, the nervous system around the dimasase area is also depressed and the muscle tissue relaxes, the nerves will also be stretched, thereby increasing parasympathetic activity to release neurotransmitters such as endorphin hormones, serotonin, aceticolin. Through the response generated by the brain, an increase in serotonin levels can reduce the psychological effects of stress and reduce psycho effects such as hypertension, the hormones released by the adrenal medulla on stress masses, namely norepineprine and epineprine which are released by the adrenal glands in the blood can increase the "fight and fight" response Olney, 2005).

Massage can make vasodilation of blood and lymph vessels and increase the response of the baroreceptor reflex which affects the decrease in activity of the sympathetic nervous system and increases the activity of the parasympathetic nerves and as a process of giving afferent impulses to reach the heart center. As a result of smooth blood circulation in organs such as musculoskeletal and cardiovascular, blood flow increases, eliminating metabolic wastes more smoothly, triggering endorphin hormones which function to provide a sense of comfort. The relaxed condition that is felt is due to relaxation which can provide gentle massage to various glands in the body, reduce cortisol production in the blood, restore sufficient hormone output to provide a balance of emotions and tension of mind (Olney, 2005).

This is similar to research by Widiyanti, (2018) that efforts to deal with sleep quality disturbances in trimester III pregnant women, by carrying out pregnancy massage. Pregnancy massage is a method that can be used to reduce discomfort and improve fitness. Pregnancy massage shown to be effective for therapy also contributes to reducing the stress of pregnant women.

Conclusion

Based on the results of the research and discussion that has been described above, it can be concluded that there is an effect of back massage on improving the quality of sleep for trimester III primigravida pregnant women in the work area of the Talaga Jaya Community Health Center.

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